

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered). Please AMEND claims * and ADD new claims * in accordance with the following:

1. (Currently Amended) A gene detecting chip to detect and to analyze at least one of genes, single base substitution SNP or point mutation of genes, the gene detecting chip comprising:

a body having a depression with a base;

a cover over said depression;

an enclosed internal space formed between said depression and said cover to receive gene samples;

a plurality of measuring electrodes on the base of said depression;

a plurality of terminals, each of said plurality of terminals being connected to a corresponding one of said of plurality of measuring electrodes; and

a common electrode having a terminal,

wherein:

each of said plurality of measuring electrodes having has one of a plurality of PCR products or oligonucleotides immobilized on its surface one of said plurality of measuring electrodes;

~~said plurality of measuring electrodes operatively connected at a bottom of said enclosed internal space is sufficient to allow measure an electric current variation between the measuring electrodes and a common electrode corresponding to hybridization between a DNA sample and the immobilized with PCR products or oligonucleotides and sufficient to detect point mutations;~~

wherein the~~said~~ common electrode is a counter electrode to said measuring electrodes arranged in the enclosed internal space; and

wherein~~when~~ a voltage is applied between said terminal of said common electrode and said plurality of terminals connected to said measuring electrodes, the~~an~~ electric current is

generated and measured;

said voltage is applied before hybridization, generating an electric current before hybridization;

said voltage is applied after hybridization, generating an electric current after hybridization;

the variation between the electric current before hybridization and the electric current after hybridization is detected,

wherein the variation is based on the number of mismatched DNA pairs in the hybridization, and

wherein the gene detecting chip detects at least one of genes, single base substitution SNP or point mutation of genes ~~said common electrode and said measuring electrode can be detected.~~

2. (Previously Presented) The gene detecting chip according to claim 1, wherein two opposing surfaces of each of said body and said cover each have an injection hole extending to the depression of the body.

3. (Previously Presented) The gene detecting chip according to claim 1, wherein said cover is transparent.

4. (Previously presented) The gene detecting chip according to claim 1, wherein said measuring electrodes form an electrode array.

5. (Previously presented) The gene detecting chip according to claim 1, wherein said common electrode is arranged so as not to contact the measuring electrodes.

6. (Previously presented) The gene detecting chip according to claim 1, wherein PCR products or oligonucleotides consisting of different genetic sequences are immobilized on each of said measuring electrodes.

7. (Previously presented) The gene detecting chip according to claim 1, wherein each of said plurality of measuring electrodes is combined with each of a plurality of wirings; and

wherein said wirings are respectively connected to said measuring electrodes on a one

to one basis, or form a matrix structure as a grid wiring consisting of a plurality of conductors fixed in rows and lines to connect each of said measuring electrodes arranged in the array with their respective nearest conductor of the conductors fixed in rows and lines.

8. (Previously presented) The detecting chip according to claim 1 or claim 2, wherein said detecting chip is configured to be inserted into and removed from a measuring apparatus capable of detecting an electric current, and is configured to be electrically connected to said measuring apparatus.

9. (Previously presented) A gene detecting chip according to any one of claims 1 to 3, wherein said detecting chip forms part of a card or a cassette.

10. (Cancelled).

11. (Previously presented) The gene detecting apparatus according to claim 1, wherein the temperature of said detecting chip is changed by using peltier devices to control temperature conditions for hybridization.

12. (Withdrawn) A method for detecting single nucleotide polymorphisms and point mutations of DNA samples, said method comprising:

filling said DNA samples of gene-amplified DNA from said DNA samples into the space part of a gene detecting chip according to claim 1;

filling an electrolyte including electrochemically active molecules into said space part, and controlling the temperature to bind the electrochemically active molecules with said double strand; and

detecting single nucleotide polymorphisms and point mutations of said DNA samples or gene-amplified DNA from said DNA samples by detecting a flowing current value through the application of the voltage between said common electrode and said measuring electrodes of the gene detecting chip.

13.-36. (Canceled).